



CD Databases & Systems

Services & Lessons Learned

Btev Workshop

June 23, 2004

J.Trumbo

Core Support Services, Database Systems
Group CSS-DSG



Overview

System Administration



- ◆ System Administration for Database Servers
 - Hardware planning and support. Do NOT underestimate your hardware needs!
 - You will need a development, an integration and a production database instance for each application.



System Administration



- Capacity Planning
- Backup & Recovery
- Sun & Linux support
- Monitoring
- 24x7 support for mission critical systems
- Security patches and general maintenance



Overview Database Support



- ◆ Oracle
- ◆ Freeware
 - Postgres
 - Mysql
- ◆ General Support



Oracle

- ◆ Oracle for mission critical databases
 - Oracle provides 24x7 technical support
 - Patches for upgrade and security
- ◆ Oracle Replication
 - Basic replication (soon to be replaced by streams)
 - Oracle streams



Freeware

- ◆ Postgres and mysql are supported by dsg.
- ◆ New versions in kits, actively assisting users with questions, upgrades, testing, etc. for freeware products.
- ◆ No vendor support, thus, email support only.
- ◆ Currently, no mission critical uses
- ◆ Lack of database constraints in mysql lay question to mysql's candidacy for mission critical applications. Imho, read only database only.

Freeware

- ◆ Dsg is ramping up dba expertise on freeware as opportunity arises.
- ◆ Reference url:
<http://www-css.fnal.gov/dsg/external/freeware>
- ◆ Repeat, for mission critical, 24x7 databases, there is no vendor support for freeware databases. If there is a problem your database may be down for an unpredictable or extended period of time.



Database Support



- ◆ Design Consulting & Data Modeling
 - What are my requirements? Requirements need to be written before data modeling can begin.
 - What have others done? Can this be reused?
 - When does this database need to be in production?
 - Choice of application architecture can impact long term database support needs.

Database Support Cont.

- ◆ INVEST TIME IN PROPER, NORMALIZED DATA MODELING UP FRONT! Redesigning after an application is in production is costly and time consuming.
- ◆ Database design via entity relationship diagrams
- ◆ Design Reviews
- ◆ Long term database support with mou

Database Support Cont.

- ◆ Which database will meet my requirements?
 - What is the potential size?
 - How will it be backed up?
 - What will the activity level require? Users & backups have impact.
 - What will the support level require?
- ◆ DSG Standards and procedures
- ◆ http://www-css.fnal.gov/dsg/external/oracle_admin/run2_standards.html
- ◆ http://www-css.fnal.gov/dsg/external/oracle_admin/24x7_run_procedures_draft.htm

Database Support Cont.

- ◆ Long Term Support includes:
 - Patches and upgrades
 - Space allocation & planning support
 - Monitoring
 - Backup and recovery (extremely important, varies by database chosen, may strongly influence which database to use)
 - Replication

Man Power & Support

4 Sysadmins – support

4 Dbas – support 3 24x7 mission critical databases, as well as a dozen others.

Currently supported experiments & infrastructure

- Cms
- D0 (3 tier application arch. lessens dba support issues)
- Cdf (replication requires 1 dba fte for support)
- Minos
- Miscomp
- CAD



DSG & BTeV

Please refer to <http://www-css.fnal.gov/dsg/external/BTeV/index.html> for plans, projects and other past btev presentations and planning for databases. There is good background here!

Success depends on a highly communicative environment, working together as a team and planning for the future.